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FOREST INSECT SURVEYS - LASSEN NATIONAL FOREST
Season of 1936

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INTRODUCTION

An insect loss survey of the Eastern Lassen Working Circle was made early in September, 1936 by the regional survey party of the Bureau of Entomology and Plant Quarantine. An earlier examination of portions of the area was made in June of the same year at the request of the Forest Supervisor for purposes of determining the possible application of clause 15-a of the revised (1936) Fruit Growers Supply Company timber sale contract. This clause provides for the salvaging of insect-killed pine, or with certain limitations, such green timber as appears particularly susceptible to attack. The results and recommendations of the examination in June were reported elsewhere (1) and will not be covered here.

Data from several plots omitted in the 1935 survey were completed during the 1936 season. Losses in cutover areas were also brought to date by the examination of five sample plots located as shown on the accompanying map.

GENERAL INFESTATION CONDITIONS

Characteristics:

The peak of a heavy infestation was reached in 1934 and a decline in losses in 1935 occurred over most of the area. The infestation continued to subside during 1936 with the exception of several localized "hot spots". Increased losses in 1936 were noted in the Brockman Flat Unit on the west shore of Eagle Lake, and on the Willow Spring Unit. The increase in the former may have resulted from an influx of barkbeetles from the heavy infestations which developed at the south end of Eagle Lake in 1934-35. The increased infestation in the Willow Spring Unit is to be expected following the reduction brought about by the control project of 1933-34. The control program succeeded in reducing losses on the unit in 1934 and 1935 but its beneficial effect has apparently terminated. The resultant loss trend has been toward the return of a fairly high normal loss characteristic of the fringe type of timber in this unit.

The 1936 losses have been featured by a reduction in the number of trees killed per acre but with a larger board-foot volume per tree. This fact, together with the absence of grouped attacks, is a further indication of the return to an endemic state from the high loss figures reached in 1934. While a slight increase in the volume per acre loss for 1936 on the Bogard and Butte Creek Units has been shown, it is believed that the infestation on these areas is in a static condition.

(1) Salman, K. A. "Memorandum for Forest Supervisor, Lassen National Forest, California, June 4, 1936."

Losses on the plots and infestation units are shown in Tables II and III, respectively.

A prevalence of topkilling in the pine species near Moon and Nigger Springs has been noted. Attacks of this nature have been increasing in the last two years. Dying incense cedar was also reported in this locality. Drought seemed to be the chief causal agent although several several trees examined had attacks of a buprestid beetle, presumably Trachykele opulenta Fall.

Composition of the Infestation:

The composition of the 1936 infestation, dependent upon the basal examination only, has not differed to any great extent from that of the previous year. Biological studies based upon stem analyses have indicated changes in the composition from year to year which basal examinations have failed to reveal. It is therefore possible that the relative importance of such species as the western pine beetle, Dendroctonus brevicornis Lec., and the Jeffrey pine beetle, D. jeffreyi Hopk. has decreased since the peak attacks in 1934, and that associated species including flathead beetles of the genus Melanophila, engraver beetles, Ips emarginatus Lec., and I. oregoni Eich., and the mountain pine beetle, D. monticolae Hopk. have increased in proportion. Field observations have shown this to be the case to a certain extent.

EFFECT OF 1935 SALVAGE CUTTING

The salvage logging carried on in 1935 on the south slopes of Ashurst Mountain appears to have brought about a reduction in the infestation amounting to approximately 65 percent since 1934. The infestation on similar stands which were subjected to direct control methods in the winter of 1934-35 showed an average reduction of 60 percent. Adjacent stands outside the boundaries of both projects were characterized by a natural reduction of about 32 percent. In this particular instance, the control effects of salvage cutting compares favorably with the reduction brought about by direct control.

TABLE I
PER ACRE VOLUME LOSS

UNIT	B. M. Loss Per Acre		
	1934	1935	1936
Willow Spring	: 121	: 80	: 120
Dixie Valley	: 633	: 440	: 319
Slate Mountain	: 358	: 297	: 213
Gordon Creek	: 100	: 97	: 48
Cave Mountain	: 182	: 134	: 104
Brockman Flat	: 231	: 139	: 160
Crater Mountain	: 169	: 175	: 171
Harvey Mountain	: 456	: 273	: 223
Cone Mountain	: 373	: 235	: 170
Bogard	: 245	: 93	: 101
Butte Creek	: 157	: 76	: 91
AVERAGE*	: 302	: 201	: 168

*Weighted by Unit Areas

TABLE II
PLOT LOSSES - LASSEN N.F.
PER SECTION BASIS

PLOT:	1934			1935			:	1936 (Revised)			:	:
NO. :	Trees:	B.M. :	BM per:	Trees:	B.M. :	BM per:	% 1934 In-	Trees:	B.M. :	BM per:	% 1935	Timbered :
:	Volume:	Acre :	:	Volume:	Acre :	:	festation :	Volume:	Acre :	:	Infestation:	Acreage :
L-1 :	154 :	169,320:	265 :	200 :	201,400:	315 :	1.19 :	80 :	110,640:	173 :	55 :	640 320 :
L-2 :	312 :	307,980:	481 :	100 :	99,240:	155 :	.32 :	105 :	106,400:	166 :	107 :	640 320 :
L-3 :	220 :	253,200:	402 :	154 :	153,680:	244 :	.61 :	108 :	119,240:	190 :	78 :	630 315 :
L-4 :	:	:	:	:	:	:	:	:	:	:	:	:
L-5 :	110 :	108,140:	169 :	158 :	112,280:	176 :	1.04 :	83 :	109,730:	171 :	97 :	640 320 :
L-6 :	130 :	76,500:	122 :	72 :	35,800:	57 :	.47 :	85 :	52,350:	83 :	146 :	630 315 :
L-7 :	114 :	85,160:	139 :	134 :	82,340:	134 :	.97 :	40 :	30,460:	100 :	37 :	614 307 :
L-8 :	326 :	373,100:	583 :	370 :	298,400:	467 :	.80 :	287 :	241,400:	377 :	81 :	640 320 :
L-9 :	332 :	253,340:	410 :	206 :	145,440:	236 :	.57 :	183 :	182,230:	295 :	125 :	618 309 :
L-10:	234 :	147,560:	233 :	172 :	88,800:	140 :	.60 :	195 :	102,700:	162 :	116 :	634 317 :
L-11:	146 :	234,220:	366 :	108 :	88,820:	139 :	.38 :	43 :	96,860:	151 :	109 :	640 320 :
L-12:	50 :	100,640:	158 :	30 :	48,400:	76 :	.48 :	29 :	62,180:	97 :	128 :	640 320 :
L-13:	84 :	78,500:	135 :	114 :	66,620:	115 :	.85 :	77 :	101,500:	175 :	152 :	582 291 :
L-14:	422 :	468,340:	744 :	296 :	247,400:	393 :	.53 :	135 :	128,980:	205 :	52 :	630 315 :
L-15:	246 :	368,960:	577 :	184 :	225,460:	353 :	.61 :	80 :	126,630:	198 :	56 :	640 320 :
AVER.	206	216,069	342	164	135,291	214	62.6	109	112,236	182	85.0	

TABLE III
UNIT LOSSES LASSEN NAT. FOR.
All Figures Per Section

UNIT	1934 Losses					1935 Losses					1936 Losses (Revised)				
	PER SECTION		PER UNIT			PER SECTION		PER UNIT			PER SECTION		PER UNIT		
	Acreage	Trees	Vol.B.M.	Trees	Vol.MBM.	Trees	Vol.B.M.	Trees	Vol.MBM.	Trees	Vol.B.M.	Trees	Vol.MBM.	Trees	Vol.MBM.
Willow Spring	51,750	107	77,500	8,650	6,266	93	51,210	7,520	4,140	81	76,930	6,550	6,220		
Dixie Valley	55,340	358	404,850	30,950	35,003	345	281,400	29,830	24,330	239	203,923	20,660	17,630		
Slate Mountain	35,230	220	229,130	12,110	12,611	252	190,370	13,870	10,478	164	136,430	9,030	7,509		
Gordon Creek	7,020	86	63,870	940	700	101	61,760	1,110	677	40	30,460	440	334		
Cave Mountain	10,990	174	116,360	2,990	1,198	153	85,570	2,630	1,469	118	66,580	2,030	1,143		
Brockman Flat	12,670	234	147,560	4,630	2,920	172	88,800	3,400	1,757	195	102,700	3,860	2,032		
Logan Mountain	6,140														
Crate Mountain	9,562	110	108,140	1,660	1,632	158	112,280	2,380	1,694	83	109,730	1,250	1,656		
Harvey Mountain	9,232	266	291,830	3,840	4,208	181	174,860	2,610	2,521	124	142,700	1,788	2,058		
Cone Mountain	38,000	233	238,650	13,830	14,169	150	150,320	8,910	8,924	93	108,520	5,521	6,443		
Bogard	19,800	98	156,930	3,030	4,854	72	59,510	2,230	1,841	43	64,500	1,330	1,995		
Butte Creek	56,290	50	100,640	4,400	8,851	30	48,400	2,640	4,257	29	58,000	2,550	5,101		
TOTALS	312,124			87,030	93,212			77,130	62,088			55,009	52,121		

TABLE IV
INSECT LOSSES ON CUTOVER PLOTS
LASSEN NATIONAL FOREST

PLOT	Location				Pine Stand:Year Cut	Average Annual Increment per Acre	Pine Loss Per Acre						Average Annual Loss 1932-1936		
	Sub.	Sec.	T.	R.			1934		1935		1936 (Est.)				
							No.	B.M. Vol.	No.	B.M. Vol.	No.	B.M. Vol.			
CO-6	S $\frac{1}{2}$	35	33N	9E	1929	2,846 b.m.	44.6	.01	3.6	.03	11.1	.02	4.8	.02	6.7
CO-7	W $\frac{1}{2}$	1	32N	8E	1930-31	4,100 b.m.	128.0	.03	6.4	.01	0.7	.02	3.4	.02	4.8
CO-8	N $\frac{1}{2}$	23	32N	9E	1927-28	3,078 b.m.	32.4	.01	1.0	.01	8.3	.01	9.8	.01	5.0
CO-9	S $\frac{1}{2}$	14	31N	9E	1922-23	3,857 b.m.	69.4	.01	7.0	.01	0.3	.02	29.3	.01	9.3
CO-10	S $\frac{1}{2}$	13	30N	8E	1926-27	6,156	107.6	.03	15.4	.01	3.3	.02	9.5	.02	10.8

All Plots 320 Acres

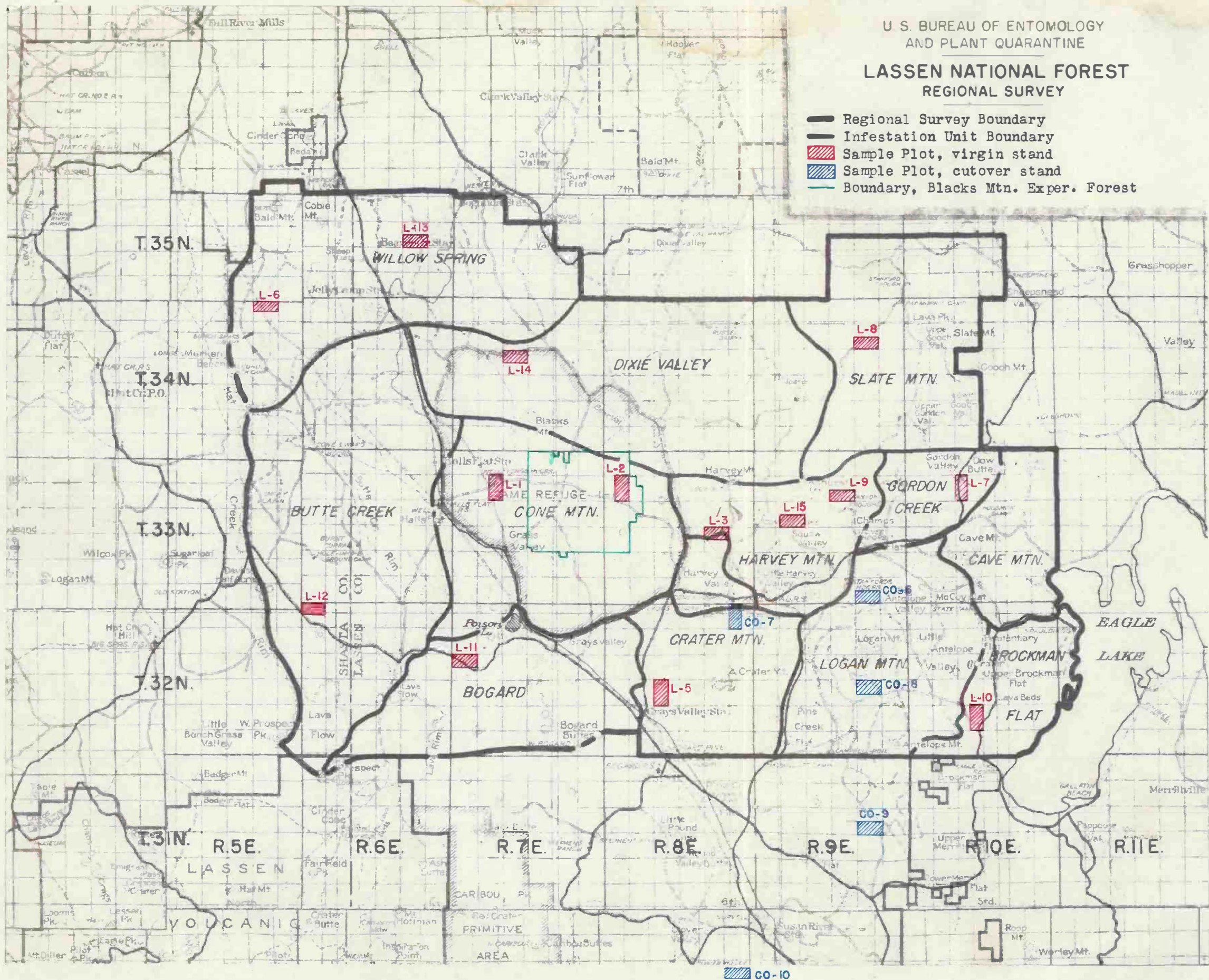
Data, columns 1-5, from "A Survey of Forest Insect Infestations On Cutover Areas in California",
by K. A. Salman, Berkeley, California, January 15, 1935.

ERRATUM: Plot L-1 should be located in the E $\frac{1}{2}$ Sec. 17; T. 33 N.; R. 7 E.

U. S. BUREAU OF ENTOMOLOGY
AND PLANT QUARANTINE

LASSEN NATIONAL FOREST
REGIONAL SURVEY

- Regional Survey Boundary
- Infestation Unit Boundary
- ▨ Sample Plot, virgin stand
- ▨ Sample Plot, cutover stand
- Boundary, Blacks Mtn. Exper. Forest



APPENDIX

Unit Estimates:

<u>Unit</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>
Butte Creek	L-12 x1	Same	Same
Bogard	L-11 x2/3	Same as 1934	L-11 x1 trees BM = 1500
Cone Mountain	L-1) L-2) Divide by 2	Same	Same
Harvey Mountain	L-3) L-9) Divide by 3 L-15)	Same	Same
Crater Mountain	L-5 x1	Same	Same
Brockman Flat	L-10 x1	Same	Same
Cave Mountain	L-10) L-7) Divide by 2	Same	Same
Gordon Creek	L-7 x3/4	Same	x1
Slate Mountain	L-7) L-8) Divide by 2	Same	Same
Dixie Valley	L-8 x2) L-14 x1) Divide by 3	Same	L-8) L-14) Divide by 3
Willow Spring ⁵	L-13) L-6) Divide by 2	Same	Same

1936 Plot Estimates

L-1 50 percent
 L-2 55
 L-3 50
 L-5 60
 L-6 40
 L-7 35
 L-8 40

L-9 35 percent
 L-10 40
 L-11 65
 L-12 55
 L-13 60
 L-14 55
 L-15 35